

# **Tribology needs for the 2000's**

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# **Tribology?**

## **What is it for?**

## **Will I ever use it?**

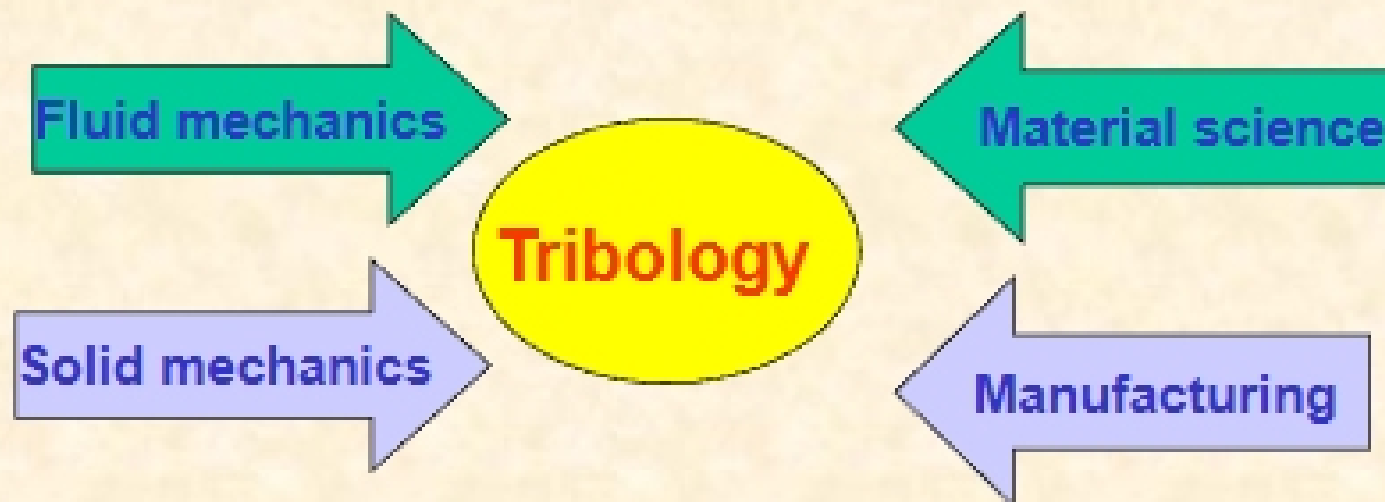
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**Tribology** embodies the study of  
**friction, lubrication and wear.**

and involves mechanical processes (motion and deformation).

A **tribologist** performs engineering work to predict and improve the performance (**how much**) and reliability (**for how long**) of a mechanical system.



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## Applications:

**Ultra-performance (reinjection) compressors:** > 10,000 psi (700 bar)



*Rotordynamics,  
materials,  
hydrodynamics*

**Dual gas turbines (fuel and coal):**  
secondary combustion on turbine side



*composite materials,  
coatings,  
extreme environments*

**Smart engines and structures:**

control of surge and stall in compressors, elimination of vibration and noise through changes in configuration,



*electronics  
coatings: nanopowders  
elasto-hydrodynamics*

**Unmanned Aerial Vehicles:**

war at a distance, no casualties  
surveillance



*surface engineering,  
materials,  
controls and  
electronics.*